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# **Public Health Reports**

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# Public Health Reports

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## Child Health Services in Twelve Metropolitan Districts

By MARYLAND Y. PENNELL, M. Sc. Hyg., KATHERINE BAIN, M. D., and JOHN P. HUBBARD, M. D.\*

Children living in or near cities have relatively more medical services available than do children in isolated counties, as measured in terms of doctors' visits, days of hospital care, visits to well-child conferences and to other types of clinics (1,2). However, it cannot be assumed that the services in the urban areas are invariably good, or altogether adequate in quality or quantity. Comparison of statistics for different areas indicates that the services available vary greatly, even between areas in which metropolitan development has been most extensive. It has therefore seemed appropriate to present comparative data for the 12 metropolitan districts, grouped in earlier publications under the heading "greater metropolitan counties," to show differences which exist among districts and between totals for all such districts, for the balance of the country, and for the country as a whole.

The group of counties forming each district "tends to be a more or less integrated area, with common economic, social, and, often, administrative interests" (3).<sup>1</sup> The composition of each district, together with pertinent data from the Study of Child Health Services on child population, doctors in private practice, public health nurses, general hospital beds, and certain community health services for children, is given in the appendix.

\*From the Public Health Service and the Children's Bureau of the Federal Security Agency, and the American Academy of Pediatrics Study of Child Health Services.

<sup>1</sup> The concept of metropolitan districts used in the analysis of data collected by the Study of Child Health Services represents only a slight modification of the pattern of metropolitan districts set up by the Bureau of the Census on the basis of 1940 census data. In the population of a district the Census Bureau included, in addition to the central city, all adjacent and contiguous minor civil divisions that were thickly settled (3). In this report on child health services the concept of a metropolitan district has been modified so that its outline follows county borders (4). A county was classified as metropolitan if half of the population (or at least 50,000 persons) were within the metropolitan district outlined by the Census Bureau. Of the resulting districts, 12 had population totals in excess of 1,000,000 at the time of the study. These 12 districts, comprising some 63 counties, make up the "greater metropolitan districts" which are the subject of special study in this report. It may be noted that the shift to county lines is of minor consequence in the interpretation of the material since 95 percent of the inhabitants of the counties live within the districts set up by the Bureau of the Census.

The location of the districts in and around the cities of Baltimore, Boston, Chicago, Cleveland, Detroit, Los Angeles, Philadelphia, Pittsburgh, St. Louis, San Francisco (including Oakland), Washington, and New York (including the northeastern New Jersey cities of Elizabeth, Jersey City, Newark, and Paterson) is shown in figure 1.

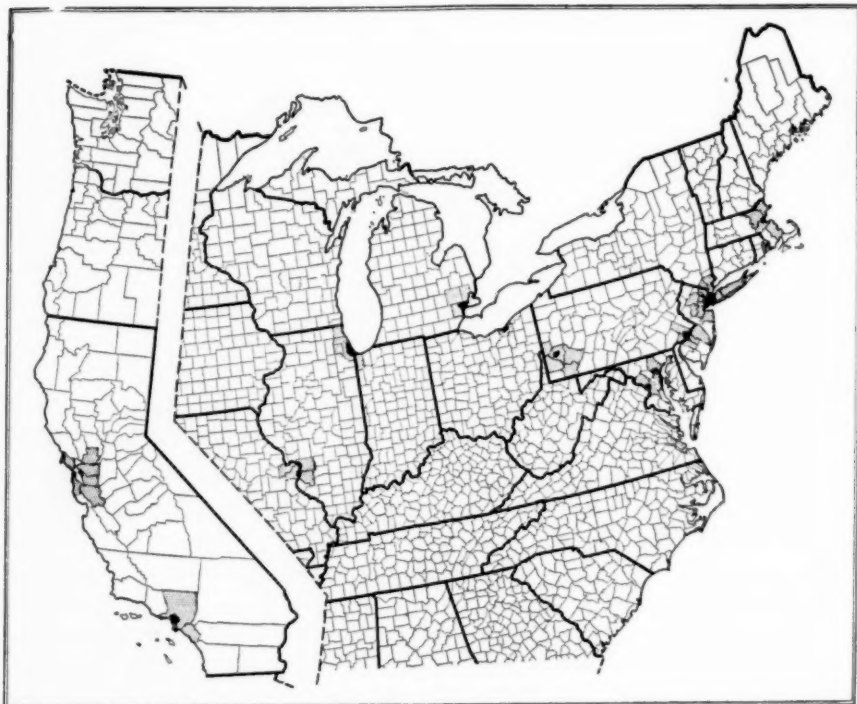


Figure 1. Location of twelve metropolitan districts used in analysis of child health services.

On this map the black areas represent the geographic extent of the central city; the shaded areas, the extent of the counties in each district. Only 5 percent of the total land area in the combined districts is within the main cities. Cleveland is the one district that does not spread beyond the boundaries of the county of which it is a part; the central city includes 16 percent of the district area. All of the other districts have less than one-tenth of the total area in the city proper, with the city of Pittsburgh accounting for only 1 percent.

In 1940 the combined districts had an enumerated population of 36,402,167 persons, or 28 percent of the United States total. Sixty-two percent of the district population lived within the 17 central cities. The proportion of the district population that was within the central city varied widely, ranging from 79 percent in Baltimore to 27 percent in Boston. The Boston district has a large proportion of

its inhabitants living in large cities of 50,000 or more persons other than the city of Boston. Within the 12 districts only about one-fourth of the population did not live in cities as large as 50,000 persons. Two percent of the population was classified as rural-farm, the largest proportion—4 percent—occurring in the districts of Pittsburgh, St. Louis, and San Francisco-Oakland.

In these metropolitan counties at the time of the study, there were about 8,374,699 children under 15 years of age.<sup>2</sup> These metropolitan districts accounted for 23 percent of the children in the entire United States. Among the 12 districts, the New York-northeastern New Jersey district had the largest number, 2,480,481. The Chicago district was the only other one with more than 1 million children. Five additional districts had as many as 500,000 children. Three districts had a child population of less than 300,000: Baltimore, Cleveland, and Washington.

## Health Personnel and Child Visits

### *Physicians*

The Study of Child Health Services inquired into the count of physicians in private practice and a list of names was prepared in each State (4). The data collected indicated that there were about 117,000 private practitioners in the United States in 1946. Retired physicians, those in full-time academic, administrative, research or institutional positions, and those employed by Federal, State, and local health agencies were excluded from the count.

The physicians in private practice in the metropolitan districts totaled 48,123, or 41 percent of those in the country. It is evident that the districts had a disproportionately large share in as much as only about one-quarter of the population lived within their boundaries. Specialists particularly were concentrated in these large urban areas; half of the pediatricians and of the other specialists were enumerated therein. Even among general practitioners, 37 percent were found to have offices in these counties.

Comparisons between districts are facilitated when totals can be related to some common population base. Since county population estimates upon which district totals might be built up are not available for a current year, estimates of child population under 15 years of age have been used. The numbers of physicians have been expressed as ratios reflecting the number per 1,000 children for each of the 12 districts, as shown in the first column of table 1.

The combined districts had 5.7 physicians per 1,000 children, as compared with a corresponding rate of only 2.5 for the balance of the

<sup>2</sup> Child population as of July 1, 1945, was estimated as a part of the Study of Child Health Services. For the method used, see reference (4).

Table 1. *Health personnel and visits to children under 15 years of age in each of 12 metropolitan county districts, 1946*

Metropolitan county district	Physicians in private practice <sup>1</sup>						Dentists in private practice <sup>1</sup>		Public health nurses <sup>2</sup>	
	Number per 1,000 children under 15			Child visits per 1,000 children per day <sup>3</sup>			Number per 1,000 children under 15	Child visits per 1,000 children per day <sup>4</sup>	Number per 1,000 children under 15	Child home nursing visits per 1,000 children per year
	Total <sup>4</sup>	General practitioners	Pediatricians	Total <sup>4</sup>	General practitioners	Pediatricians				
New York-northeastern New Jersey...	7.54	4.42	0.27	21.0	14.7	2.9	<sup>5</sup> 4.54	<sup>5</sup> 8.07	0.86	477
Philadelphia.....	5.61	3.13	.21	17.5	11.6	2.3	<sup>5</sup> 3.32	<sup>5</sup> 5.77	.53	378
San Francisco-Oakland.....	5.60	2.64	.26	17.8	9.5	4.3	<sup>5</sup> 3.90	<sup>5</sup> 6.02	.64	255
Chicago.....	5.57	3.52	.19	15.1	10.6	2.3	<sup>5</sup> 3.85	<sup>5</sup> 6.78	.46	549
Los Angeles.....	5.54	2.66	.20	13.5	7.7	2.5	<sup>5</sup> 3.27	<sup>5</sup> 4.48	.36	119
Cleveland.....	5.41	3.00	.21	14.6	8.8	2.6	<sup>5</sup> 4.00	<sup>5</sup> 6.39	.54	215
Washington.....	5.37	2.70	.28	17.3	9.2	4.0	<sup>5</sup> 2.84	<sup>5</sup> 4.56	.88	172
Boston.....	5.36	3.21	.22	20.6	15.6	2.1	<sup>5</sup> 3.00	<sup>5</sup> 6.97	.89	446
St. Louis.....	4.55	2.33	.13	13.9	8.7	2.6	<sup>5</sup> 2.95	<sup>5</sup> 4.00	.37	162
Baltimore.....	4.52	2.16	.20	14.4	8.6	2.7	<sup>5</sup> 1.82	<sup>5</sup> 3.15	.83	495
Pittsburgh.....	3.81	2.38	.11	17.5	11.4	1.9	<sup>5</sup> 2.42	<sup>5</sup> 4.59	.38	106
Detroit.....	3.23	1.93	.10	14.6	10.0	2.0	<sup>5</sup> 1.72	<sup>5</sup> 3.63	.62	430
Total metropolitan county districts.....	5.75	3.27	.21	17.6	11.7	2.6	<sup>5</sup> 3.38	<sup>5</sup> 5.97	.65	374
Balance of country.....	2.49	1.72	.06	12.3	9.6	1.2	<sup>5</sup> 1.35	<sup>5</sup> 2.39	.33	160
United States.....	3.24	2.08	.10	13.5	10.1	1.5	<sup>5</sup> 1.82	<sup>5</sup> 3.18	.40	210

<sup>1</sup> Excludes retired doctors and those in full-time academic, administrative, research or institutional positions, and those employed by Federal, State, and local health agencies.

<sup>2</sup> Registered nurses working full-time for community health agencies, both official and voluntary, that give general service to children. Excludes nurses giving special services such as (a) nurses working full-time in schools, (b) nurses employed by agencies giving only industrial, tuberculosis, or venereal disease service, and (c) supervisors employed by State agencies.

<sup>3</sup> Based on 1-day record of visits, with about one-seventh of the doctors reporting for each day of the week. Data adjusted for season and nonresponse; for methodology see reference (2).

<sup>4</sup> Includes specialists other than pediatricians. Specialists are those who reported practice limited to a recognized specialty, irrespective of certification.

<sup>5</sup> Exclusive of New Jersey.

<sup>6</sup> Exclusive of New Jersey and Wisconsin.

country. Eight of the districts had 5 or more physicians per 1,000 children, a rate twice as high as that for the balance of the country. The Detroit district was the only one that did not exceed the United States average of 3.2 physicians per 1,000 children. The New York-northeastern New Jersey district had the largest ratio of physicians to child population. The Detroit district showed less than half as many, whether stated in terms of general practitioners, pediatricians, or all physicians.

In the course of the study each physician was asked to report by mail, for an assigned day, the number of children seen for sick care and health supervision. The number of child visits in relation to population was highest in the New York-northeastern New Jersey and Boston districts, where there were about 21 visits per 1,000 children on an average day. The other districts had rates that ranged from 17.8 to 13.5 visits. Children in the balance of the country

received one-third less physicians' visits than those in the combined 12 districts.

It is recognized that the district total rates are based upon totals which include visits to children who reside beyond the district borders. It is believed, however, that the services of general practitioners and of pediatricians are concerned for the most part with the care of children residing in the immediate area of their location. For this reason separate rates have been computed to show child-visit ratios for these two physician groups. The same two districts, New York-northeastern New Jersey and Boston, were in first place in terms of visits to general practitioners. However, when pediatricians' visits are considered, the San Francisco-Oakland and Washington districts, where almost one-fourth of the total physicians' visits to children were made by child specialists, led all other districts. In the Boston and Pittsburgh districts pediatricians accounted for as little as one-tenth of the total child visits to physicians.

### *Dentists*

A total of 65,684 dentists was reported as being in private practice in the United States at the time of the study. Of these, 28,270 had offices in the 12 districts. This amounts to a concentration of 43 percent in the counties where about one-fourth of the people live and follows a pattern similar to that for physicians.

There were 3.4 dentists per 1,000 children in the combined districts, as compared with a rate of 1.4 for the balance of the country (table 1). Among the 12 districts the ratio of dentists to child population was highest in the New York counties, and lowest in the Detroit and Baltimore districts.

The number of dentists in a district is an indication of the number of children under dental care. Each dentist was queried in regard to his child patients on an assigned day, and the aggregate child visits showed a wide variation among the districts. The New York rate of 8.1 child visits per 1,000 children on an average day was more than twice the low rate in the Baltimore district. Five of the districts had more than 6 visits per 1,000 children on 1 day, the combined district rate. Children in the balance of the country received less than half the rate of visits of those in the 12 districts.

### *Public Health Nurses*

Of the total 14,550 full-time nurses engaged in general public health programs in the United States, according to the study reports, 5,415, or 37 percent, were employed by official and voluntary agencies in the 12 metropolitan districts. In addition, in these districts there were about 200 nurses employed on a part-time basis. Nurses serving in

agencies giving only school health, industrial hygiene, tuberculosis, or venereal disease services have been excluded from this count.

Since a large part of the public health nurses' service is for children, the total number of nurses in relation to the child population is shown in table 1. In the combined districts there were 0.65 full-time public health nurses per 1,000 children under 15 years of age, twice the rate prevailing in the balance of the country. The rates ranged from 0.89 to 0.36 nurses per 1,000 children in the 12 districts. The highest ratios of nurses to children were in the Boston, Washington, and New York-northeastern New Jersey districts; the lowest ratios, in Los Angeles, St. Louis, and Pittsburgh.

The National Organization for Public Health Nursing has recommended a standard of one nurse to a population of 2,000 when bedside nursing is to be included in the public health nursing program (5). It is recognized that nursing needs vary with age, and only a very rough indication of the needs of children is possible. On the basis of one-fourth of the population being under 15 years of age, the ratio has been restated as about two nurses per 1,000 children under 15. The number of nurses reported as being in the combined districts in 1946 is only one-third those required to meet such a minimum standard. Even the Boston district, with the highest rate of 0.89 nurses per 1,000-child population, would have to more than double its total number to come up to this level.

Over 3 million home visits were made by public health nurses during the study year to children in these metropolitan districts. This amounted to 41 percent of the total home nursing visits to children in the entire country. In terms of child population there were 549 visits per 1,000 children per year in the Chicago district where the highest rate was found. Four districts—Washington, St. Louis, Los Angeles, and Pittsburgh—had rates lower than the United States average. The combined district rate, however, was more than twice the rate prevalent in the remainder of the country.

### General Hospital Facilities and Services

In the metropolitan districts are located 865 general hospitals (with 5 or more beds), including those for maternity and pediatric care. This accounts for only one-sixth of the total number of such hospitals which are located in the United States. Although comparatively few of the hospitals are in these districts, those included are relatively large in size so that about one-third of the total hospital beds are within the district borders.

The general hospitals in the 12 districts had a total of 156,417 beds at the time of the study, which gave a rate of 18.7 beds per 1,000 children (table 2). Total beds in relation to child population has been used as an index of the total hospital facilities available to

Table 2. *Facilities and services for children in general hospitals in each of 12 metropolitan county districts, 1946*

Metropolitan county district	Number per 1,000 children under 15		Percent of total beds reserved for children	Percent of child admissions to hospitals with pediatric units	Child OPD visits per 1,000 children under 15, per year
	Total beds <sup>1</sup>	Beds for children <sup>2</sup>			
New York-northeastern New Jersey.....	20.2	2.33	11.5	92	127
Philadelphia.....	21.3	2.55	12.0	90	53
San Francisco-Oakland.....	20.1	1.77	8.8	80	192
Chicago.....	17.9	2.22	12.4	82	132
Los Angeles.....	15.4	.90	5.9	76	183
Cleveland.....	19.8	1.25	6.3	90	163
Washington.....	21.0	2.29	10.9	90	289
Boston.....	19.3	2.52	13.1	86	161
St. Louis.....	20.9	2.31	11.1	90	136
Baltimore.....	22.5	1.97	8.8	94	181
Pittsburgh.....	13.9	1.77	12.8	97	360
Detroit.....	13.8	1.19	8.7	79	136
Total metropolitan county districts.....	18.7	2.02	10.8	88	157
Balance of country.....	11.1	.95	8.6	64	33
United States.....	12.8	1.20	9.3	71	62

<sup>1</sup> In hospitals with 5 or more beds, both those registered by the American Medical Association and those unregistered. Includes maternity and pediatric hospitals.

<sup>2</sup> In hospitals with 25 or more beds where there is a pediatric unit of 5 or more beds permanently set aside for the care of children.

children. Obviously the beds used for child care fall below this figure but well above the total given as "Beds for children" in the second column of the table. This category is limited to hospitals with 25 or more beds where there is a pediatric unit of 5 or more beds permanently set aside for the care of children. Except in pediatric hospitals and those with separate pediatric units, many beds are used interchangeably for children and adults according to need and circumstance.

The rate of total beds to child population in the metropolitan districts was one-and-a-half times that of the balance of the country. Among the districts the range in rates was from 22.5 in Baltimore to less than 14 total beds per 1,000 children in Pittsburgh and Detroit.

Beds reserved for children totaled 16,878 in the district hospitals with pediatric units, as defined above. This accounted for 39 percent of the pediatric beds in the entire country. The rate of beds for children per 1,000 children under 15 years of age was 2.0 in the 12 districts, as compared with half that figure in the balance of the country.

The districts that ranked low in the ratio of pediatric beds to child population were Los Angeles, Cleveland, and Detroit. In the first two as few as 6 percent of the total beds were reserved for the care of children. The Boston district had the largest proportion of beds set aside for children and next to the largest rate of pediatric beds, being exceeded only by the Philadelphia district.

While the proportion of all beds set aside for children in general hospitals varied from 6 to 13 percent among the districts, a very large part of child admissions to hospitals was made to those hospitals

having pediatric units. In the combined districts, 88 percent of the total child admissions were to such hospitals. Within the districts the percentages varied from a high of 97 in Pittsburgh to a low of 76 in Los Angeles. In the balance of the country less than two-thirds of the child admissions were to hospitals with pediatric units.

Outpatient departments are recognized as a feature of large urban hospitals. In the combined districts there were 367 outpatient departments admitting children—40 percent of the total number. A total of 272 hospitals had separate pediatric units, a total which represents more than half of all such clinics in the country. The Pittsburgh district had a surprisingly large number of clinics and the 360 child OPD visits per 1,000 children per year was the highest rate reported. The Washington district was in second place, while Philadelphia was at the bottom of the list. The combined district rate of child OPD visits was nearly five times that of the balance of the country (table 2).

### Well-child Conferences

Well-child conferences under the direction of a physician offer preventive medical service such as immunizations, routine health examinations, advice on feeding, and other care designed to maintain the health of well children. Clinics operated by community health agencies provide 13 percent of the health supervision visits to infants and preschool children (other than the newborn) in the metropolitan districts; the balance of the service is given by physicians in their private practice (2).

The 12 districts accounted for nearly half of the total clinic sessions held in the United States during the study year although they represented less than one-fourth of the total children under 5 years of age. The rate of sessions within the districts was nearly three times that in the balance of the country.

Voluntary agencies gave only a small part of the well-child clinic care; they provided one-fifth of the sessions in the combined districts. Such agencies sponsored a larger proportion of the sessions in the Philadelphia area (49 percent) and in the Chicago area (41 percent). Official agencies, however, accounted for at least 95 percent of the sessions in the Cleveland, Los Angeles, and St. Louis districts.

Most of the sessions in the combined districts, 84 percent, were for both infants and preschool children. The Chicago district was unique in offering a large proportion of unmixed sessions; there, 62 percent of the total sessions were for infants and 6 percent for preschool children. In that district nearly three-fourths of the children admitted were infants, indicating the concentration on baby clinics. Preschool children, however, were in the majority in half of the districts, but even in the districts with the highest proportion—Baltimore and Detroit—they comprised but two-thirds of the patients.

The districts with the highest rate of sessions were usually those with the largest number of clinic visits and of patients. The Baltimore district was in first place on all three indices; the Detroit district, in last position. Half of the districts reported 23 or more sessions, 502 or more visits, and 145 or more patients per 1,000 children under 5, per year.

In the 12 districts the number of visits per 1,000 children under 5 during the year was nearly four times the rate in the balance of the country, but the number of children seen was only slightly more than twice as many. This difference is reflected in terms of the number of visits per patient during the year: 3.6 in the districts as contrasted with 2.4 in the rest of the country. Thus repeat visits necessary for continuing health supervision were more common in metropolitan areas. In the Baltimore district with the highest rate of attendance, about one child out of five, in the age group under 5 years, attended well-child clinics and he averaged 3.0 visits during the year. In the Chicago district, there was an average of 5.4 visits per patient but fewer children were handled (table 3).

Table 3. *Well-child conferences in each of 12 metropolitan county districts, 1946*

Metropolitan county district	Number per 1,000 children under 5, per year			Number of visits per patient per year	Percent of sessions with pediatrician in attendance
	Sessions	Visits	Patients		
New York-northeastern New Jersey.....	30	516	153	3.4	11
Philadelphia.....	24	502	145	3.5	30
San Francisco-Oakland.....	28	584	152	3.8	25
Chicago.....	23	552	102	5.4	58
Los Angeles.....	12	284	82	3.4	85
Cleveland.....	16	185	77	2.4	71
Washington.....	37	551	179	3.1	36
Boston.....	20	460	147	3.1	51
St. Louis.....	13	287	83	3.4	56
Baltimore.....	40	618	203	3.0	60
Pittsburgh.....	15	130	32	4.0	2
Detroit.....	3	54	19	2.8	0
Total metropolitan county districts.....	22	422	118	3.6	31
Balance of country.....	8	106	45	2.4	24
United States.....	11	182	62	2.9	27

The pattern of staff attendance at the well-child conferences varied markedly among the districts. In the combined districts, 46 percent of the sessions were attended by general practitioners, 31 percent by pediatricians, and 23 percent by health officers and physicians employed full-time by the sponsoring agencies. The last group of physicians accounted for at least half of the sessions in three districts—Philadelphia, San Francisco-Oakland, and Washington—but virtually none in the areas of Baltimore, Chicago, and Cleveland. Pediatricians were strikingly absent from the conferences held in the Detroit and Pittsburgh districts (table 3).

Information on types of practices in well-child conferences was tabulated to give a rough indication of the quality of services and has been expressed in terms of the proportion of the sessions that were sponsored by community health agencies having that practice. Routine immunization for smallpox and diphtheria was a general practice, followed in 83 percent of the sessions held in the combined districts, but it was noticeably low in the areas of Boston, Detroit, and Philadelphia. The practice of routine immunization for whooping cough was not as prevalent and was reported for only two-thirds of the sessions. Practically all of the agencies provided public health nursing follow-up in the home, and advice to mothers on formulas, feeding, care, and training. Consultant services available to the staff and to the parents showed considerable variation among the districts. Three-fourths of the total sessions offered such service by a nutritionist, but the Chicago and Washington areas were low in this practice. Forty-five percent of the sessions were by agencies with a psychologist or psychiatrist on the staff, with a range from 3 to 85 percent among the districts. It should be borne in mind that all of these percentages are based on the agencies' statements of policy, and practice may vary as to how thoroughly policies are carried out.

### Dental Clinic Care

Children's dental clinics provided only 6 percent of the total dental care that the children in the 12 districts received during the study year. The other 94 percent was furnished by dentists in their private practice (2).

The pattern of more clinic care in or near large cities is again evident. The clinics in the metropolitan districts accounted for almost two-thirds of the total clinic dentist-hours for the entire country. Within the 12 districts, 80 percent of the dentists' time was reported for clinics operating in the central cities.

Some of the districts offered virtually no dental clinic service for children, by either official or voluntary agencies. Voluntary agencies provided one-third of the total dentist-hours in the combined districts. In the Detroit districts, they accounted for half of the time; in the Philadelphia area, as much as three-fourths. Yet, they were missing from the Baltimore and San Francisco-Oakland districts and made little contribution in the St. Louis area during the year.

Clinics in the Boston and Washington districts provided the highest rate of care during the year, whether measured in terms of dentist-hours, visits and patients for services other than examinations, or examinations. Among the 12 districts, the range in dentist-hours per 1,000 children under 15, per year, was from 156 to 13, with the San Francisco-Oakland district in last position. With regard to visits for

services other than examination, the Boston rate of 327 visits per 1,000 children per year was far above Washington with the next highest rate of 189; Cleveland had the low rate of 32. Twice as many patients received service in Boston as in the Washington district (table 4).

Table 4. Dental clinic care for children in each of 12 metropolitan county districts, 1946

Metropolitan county district	Number per 1,000 children under 15, per year				Number of visits <sup>1</sup> per patient per year	Ratio of examinations to patients given service
	Dentist-hours	Visits <sup>1</sup>	Patients <sup>1</sup>	Examinations <sup>2</sup>		
New York-northeastern New Jersey.....	92	185	47	241	3.9	5.1
Philadelphia.....	114	177	52	216	3.4	4.1
San Francisco-Oakland.....	13	39	7	40	5.8	5.9
Chicago.....	29	71	18	67	3.9	3.7
Los Angeles.....	23	81	32	229	2.5	7.1
Cleveland.....	45	32	6	270	5.2	44.1
Washington.....	147	189	72	563	2.6	7.9
Boston.....	156	327	150	494	2.2	3.3
St. Louis.....	67	82	34	239	2.4	7.1
Baltimore.....	132	83	24	29	3.5	1.2
Pittsburgh.....	68	74	19	281	3.8	14.5
Detroit.....	22	38	20	27	1.9	1.3
Total metropolitan county districts.....	74	133	42	214	3.1	5.0
Balance of country.....	13	24	13	77	1.9	6.0
United States.....	27	49	20	109	2.5	5.5

<sup>1</sup> For services other than examinations.  
<sup>2</sup> Includes examinations by dentists and others.

Children in the 12 districts received more than five times as much dental clinic care as those in the balance of the country when the comparison is made in terms of dentist-hours or visits for service. The difference is not quite as marked in regard to child patients per 1,000, but in the 12 districts, clinics still served three times as many patients per unit of population as were handled elsewhere.

The programs varied considerably in regard to the number of visits per patient during the year. The two districts with the highest rate of repeat visits—San Francisco-Oakland and Cleveland—were the lowest in terms of patients seen. In the combined districts there were 3.1 visits per patient per year, a rate 50 percent higher than that in the balance of the country.

The Washington and Boston districts were outstanding in the number of children examined as well as in the number given service. In those districts about 500 children per 1,000 received dental examination in children's clinics during the year. The rate of examination in the combined districts was nearly three times that in the remainder of the country.

The ratio of dental examinations to patients given service also showed considerable variation. In the Cleveland and Pittsburgh

districts, the emphasis was on examinations; in the Baltimore and Detroit districts, on service. About five children were examined for every one given service in the combined districts, a rate not too different from that of the rest of the country.

## Summary

The relative magnitude of the ratios of selected types of health personnel, facilities or services per 1,000 children in each of the 12 metropolitan county districts has been summarized graphically in figure 2. For any one type, the individual district rates have been divided by the average of the rates for all of the districts.

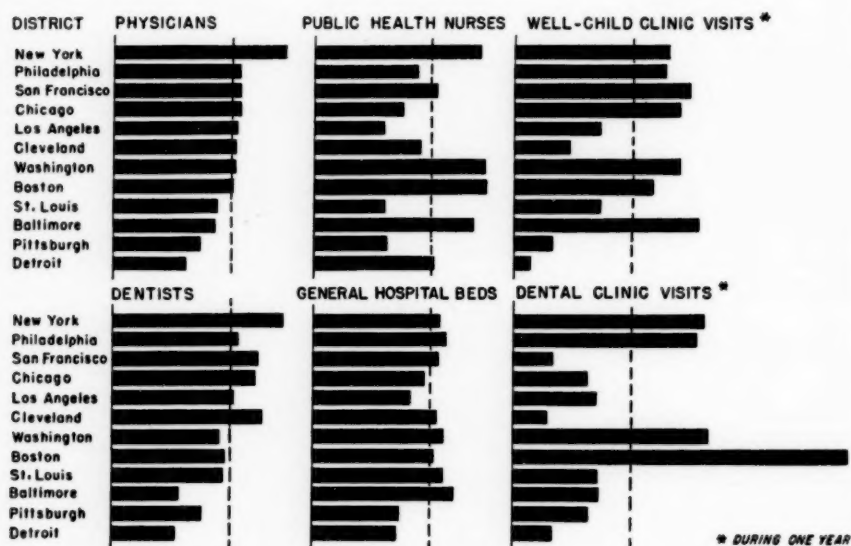


Figure 2. Summary of six indices of child health services by district, 1946. (The dotted lines indicate the unweighted combined-district averages of the rates per 1,000 children. The individual district rates have been divided by the corresponding combined-district average. The length of the bars thus indicate the inter-district variation both within one index and between indices.)

The New York district (including northeastern New Jersey) was outstanding in the number of health personnel in relation to child population, with as much as 40 percent more physicians, dentists, and public health nurses than the combined-district averages. No other district even approached its rate of physicians and dentists in private practice. With regard to nurses engaged full-time in general public health programs the Boston and Washington districts slightly exceeded the New York-northeastern New Jersey rate. The districts of Los Angeles, St. Louis, and Pittsburgh were in the lowest positions.

The Baltimore district occupied the most favorable position as to general hospital beds; the Pittsburgh and Detroit districts, the most

unfavorable. The variation in hospital facilities among the 12 districts, however, is considerably less than that for health personnel.

The Baltimore district also stressed the importance of well-child conferences in the health supervision of children under 5 years of age, again in marked contrast to the Pittsburgh and Detroit areas. The clinics in the Chicago district gave more continuing health supervision as measured by visits per patient per year, but they were in third position in terms of child visits.

The variation among the districts was greatest for services provided in children's dental clinics. The Boston district had nearly three times the combined-district average of visits for service per 1,000 children per year. The Cleveland, Detroit, and San Francisco (including Oakland) districts had only about one-third the 12-district average.

Data on child population, doctors in private practice, public health nurses, beds in general hospitals, well-child clinic sessions, and dental clinic dentist-hours for children are given in the appendix for each of the 12 districts, the 63 metropolitan counties, and the 17 central cities. The information was collected during 1946 and early 1947 when medical and dental personnel were still returning from military service, and changes may have occurred in many areas.

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## APPENDIX

*Child population (1945); private practitioners, public health nurses, general hospital beds, and community health services for children (1946), by district, county, and central city*

District, county, and central city	Child population		Private practitioners				Public health nurses, full time	Beds in general hospitals		Well-child clinic sessions during year	Dental clinic dentists during year <sup>1</sup>
	Under 15	Under 5	Physicians		Dentists	Total					
			General practitioners	Pediatricians							
Baltimore district.....	280,705	117,354	1,268	605	56	512	234	6,318	553	4,662	36,900
Counties:											
Anne Arundel.....	22,245	8,348	30	26	1	12	18	70	10	239	60
Baltimore.....	53,753	20,591	54	49	2	32	27	0	0	189	264
Baltimore city <sup>1</sup> .....	204,727	88,415	1,184	530	53	468	189	6,248	543	4,234	36,576
Central city:											
Baltimore.....	204,727	88,415	1,184	530	53	468	189	6,248	543	4,234	36,576
Boston district.....	632,191	247,431	3,389	2,029	136	1,897	563	12,170	1,595	4,898	98,901
Counties:											
Essex <sup>1</sup> .....	105,945	40,396	503	363	15	256	80	1,671	208	381	9,444
Middlesex <sup>1</sup> .....	225,594	85,911	836	638	25	509	173	3,064	337	1,865	18,824
Norfolk <sup>1</sup> .....	78,780	29,533	343	241	20	216	69	851	73	856	5,395
Plymouth <sup>1</sup> .....	38,273	14,800	170	140	7	353	29	353	26	236	1,706
Suffolk <sup>1</sup> .....	183,599	76,791	1,537	647	74	815	212	6,231	951	1,590	63,532
Central city:											
Boston.....	( <sup>1</sup> )	( <sup>1</sup> )	1,451	578	71	767	197	6,006	920	1,590	62,932
Chicago district.....	1,028,277	418,310	5,731	3,624	196	3,962	471	18,441	2,281	9,654	29,664
Counties:											
Illinois: Cook <sup>2</sup> .....	882,735	362,736	5,308	3,305	179	3,636	443	16,796	2,123	9,434	28,203
DuPage.....	28,534	9,324	98	79	2	67	10	250	6	68	0
Lake.....	31,001	11,963	104	75	7	78	0	433	48	124	222
Indiana: Lake <sup>3</sup> .....	86,007	34,287	221	165	8	181	18	962	104	28	1,239
Central city:											
Chicago.....	( <sup>1</sup> )	( <sup>1</sup> )	4,644	2,889	144	3,106	332	14,948	1,925	7,950	23,246
Cleveland district.....	268,204	111,097	1,450	805	55	1,073	144	5,310	334	1,803	11,982
County:											
Cuyahoga <sup>2</sup> .....	268,204	111,097	1,450	805	55	1,073	144	5,310	334	1,803	11,982
Central city:											
Cleveland.....	( <sup>1</sup> )	( <sup>1</sup> )	1,317	724	49	870	121	4,782	292	1,367	11,572
Detroit district.....	675,094	260,645	2,180	1,301	66	1,163	420	9,287	806	855	15,049
Counties:											
Macomb.....	43,998	15,240	32	26	0	26	8	210	22	0	2,000
Oakland <sup>2</sup> .....	89,626	32,478	132	83	8	81	56	509	65	130	2,000
Wayne <sup>2</sup> .....	541,470	212,927	2,016	1,192	58	1,056	356	8,568	719	725	11,049
Central city:											
Detroit.....	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	( <sup>1</sup> )	302	6,977	606	509	8,929

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Los Angeles district..... 741,987 295,427 4,107 1,977 151 264 3,415 10,876

Counties: 671

Los Angeles district.....	741, 987	296, 427	4, 107	1, 977	161	2, 428	264	11, 429	671	3, 415	16, 876
Counties:											
Los Angeles 1	703, 469	280, 447	3, 952	1, 866	145	2, 346	256	10, 773	645	3, 363	16, 776
Orange.....	38, 518	14, 980	155	111	6	82	8	656	26	32	100
Central city:											
Los Angeles.....	(*)	(*)	2, 121	902	59	1, 146	77	7, 124	474	1, 375	(*)
New York district.....	2, 480, 451	987, 928	18, 708	10, 962	674	(*)	2, 120	50, 068	5, 781	29, 562	227, 166
Counties:											
New York: Bronx 1	(*)	(*)	1, 529	1, 168	6	(*)	129	3, 011	393	2, 891	14, 790
Kings 1	3, 724	3, 724	2, 327	2, 327	178	2, 160	359	9, 362	1, 094	6, 783	24, 678
Nassau.....	104, 073	36, 726	6, 613	420	58	3, 954	69	966	97	6, 753	24, 397
New York 1	1, 435, 478	587, 797	6, 325	2, 766	230	3, 954	553	17, 314	1, 734	6, 563	104, 553
Queens 1	(*)	(*)	1, 583	1, 118	7	897	117	2, 664	1, 428	2, 570	9, 901
Richmond 1	(*)	(*)	1, 119	1, 119	7	97	42	570	96	668	1, 965
Rockland.....	16, 313	5, 243	163	57	1	41	8	207	18	56	37
Suffolk.....	46, 586	14, 040	167	129	1	111	26	456	43	0	0
Westchester 1	118, 354	42, 012	830	475	47	453	119	2, 632	359	1, 547	4, 462
New Jersey: Bergen.....	196, 147	36, 123	343	245	7	(*)	102	597	99	2, 520	1, 417
Essex 1	177, 692	73, 174	1, 148	348	42	(*)	166	3, 538	453	2, 214	13, 032
Hudson 1	131, 692	53, 872	348	348	11	(*)	94	3, 138	334	2, 742	38, 244
Middlesex.....	60, 135	19, 488	181	137	6	(*)	41	521	65	1, 316	3, 416
Monmouth.....	37, 601	14, 704	170	122	3	(*)	39	649	62	109	2, 466
Morris.....	29, 638	11, 112	107	71	5	(*)	32	334	21	202	1, 212
Passaic 1	64, 648	25, 008	352	222	10	(*)	46	1, 368	159	1, 091	3, 335
Union 1	78, 164	30, 519	382	247	11	(*)	79	1, 111	110	1, 740	2, 030
Central cities:											
New York City.....	1, 435, 478	587, 797	13, 323	7, 498	475	6, 926	1, 200	32, 921	3, 745	19, 475	155, 977
Elizabeth.....	(*)	(*)	122	80	5	(*)	18	619	52	0	0
Jersey City.....	(*)	(*)	160	160	4	(*)	63	2, 266	221	2, 574	35, 752
Newark.....	(*)	(*)	241	388	4	(*)	87	2, 366	352	1, 248	7, 794
Paterson.....	(*)	(*)	108	105	5	(*)	17	875	101	1, 113	1, 747
Philadelphia district.....	676, 318	271, 670	3, 794	2, 116	142	(*)	360	14, 877	1, 724	6, 386	76, 743
Counties:											
Pennsylvania: Delaware 1	82, 445	30, 588	325	207	14	181	35	614	77	274	3, 139
Montgomery.....	69, 018	26, 439	364	237	13	161	46	1, 007	93	256	1, 694
Philadelphia 1	421, 187	174, 608	2, 773	1, 438	107	1, 558	203	11, 754	1, 468	5, 464	69, 830
New Jersey: Burlington.....	22, 817	8, 799	69	54	2	(*)	23	156	0	64	46
Camden 1	62, 121	23, 985	214	138	6	(*)	40	765	78	304	2, 124
Gloucester.....	18, 730	7, 261	40	42	0	(*)	13	91	8	24	0
Central city:											
Philadelphia.....	421, 187	174, 608	2, 773	1, 438	107	1, 558	203	11, 754	1, 468	5, 464	69, 830
Pittsburgh district.....	553, 357	216, 661	2, 107	1, 316	59	1, 341	210	7, 665	1, 980	3, 261	37, 825
Counties:											
Allegheny 1	324, 805	130, 797	1, 501	836	51	987	178	5, 775	809	2, 925	30, 461
Beaver.....	44, 134	16, 220	128	101	1	80	7	327	17	142	1, 868
Fayette.....	53, 693	19, 860	110	86	3	64	4	425	51	64	1, 409
Washington.....	84, 047	20, 935	154	123	3	84	10	561	55	78	1, 833
Westmoreland.....	76, 678	28, 840	214	170	1	126	8	577	48	52	2, 284
Central city:											
Pittsburgh.....	(*)	(*)	1, 015	464	38	639	45	4, 476	688	2, 423	22, 309

See footnotes at end of table.

Child population (1945); private practitioners, public health nurses, general hospital beds, and community health services for children (1946), by district, county, and central city—Continued

District, county, and central city	Child population		Private practitioners				Public health nurses, full time	Beds in general hospitals		Well-child clinic sessions during year	Dental clinic hours during year <sup>1</sup>
	Under 15	Under 5	Physicians			Dentists		Total	Pediatric		
			Total	General practitioners	Pediatricians						
St. Louis district.....	349,526	133,427	1,590	813	47	1,032	129	7,290	806	1,068	23,555
Counties:											
Missouri: St. Charles.....	6,950	2,549	19	15	0	11	0	80	9	0	0
St. Louis.....	82,829	27,229	105	80	1	88	24	235	25	408	2,155
St. Louis city <sup>2</sup> .....	174,579	72,271	1,243	540	42	777	81	5,983	637	710	19,312
Illinois: Madison.....	42,752	15,841	105	88	2	76	4	482	74	94	294
St. Clair <sup>3</sup> .....	42,416	15,537	118	90	2	80	20	510	61	456	1,794
Central city:											
St. Louis.....	174,579	72,271	1,243	540	42	777	81	5,983	637	710	19,312
San Francisco-Oakland district.....	440,460	166,497	2,466	1,165	116	1,716	281	8,846	780	4,725	5,709
Counties:											
Alameda <sup>1,2</sup> .....	136,328	52,258	723	374	40	495	50	2,043	194	1,471	0
Contra Costa.....	63,628	18,966	81	71	3	57	21	429	26	398	391
Marin.....	13,821	4,787	39	39	3	43	13	149	0	155	114
San Francisco <sup>2</sup> .....	120,176	52,801	1,218	462	53	882	131	4,530	405	2,078	4,500
San Mateo.....	34,176	12,654	113	65	6	79	16	384	42	191	0
Santa Clara <sup>1</sup> .....	45,811	17,222	229	120	10	123	38	921	82	178	635
Solano.....	26,520	9,069	50	44	1	37	12	380	31	284	69
Central cities:											
San Francisco.....	120,176	52,801	1,218	462	53	882	131	4,530	405	2,078	4,500
Oakland.....	( <sup>1</sup> )	479	231	231	24	336	43	1,647	188	871	0
Washington district.....	248,099	111,478	1,353	671	69	704	219	5,206	567	4,121	36,509
Counties:											
District of Columbia <sup>2</sup> .....	148,549	68,767	1,098	502	52	609	166	4,583	523	3,265	33,244
Maryland: Montgomery.....	28,642	11,695	101	70	5	98	18	142	10	160	1,200
Prince Georges.....	26,177	13,378	48	41	1	18	13	202	15	129	163
Virginia: Arlington <sup>2</sup> .....	34,731	17,638	86	58	11	49	22	279	29	567	1,902
Central city:											
Washington.....	148,549	68,767	1,098	502	52	609	166	4,583	523	3,265	33,244
Total metropolitan county districts.....	8,374,699	3,337,925	48,123	27,384	1,767	28,770	5,415	156,417	16,878	75,010	616,879
Balance of country.....	27,631,096	10,671,457	68,672	47,631	1,729	37,414	9,135	306,249	26,206	85,238	352,197
United States.....	36,005,795	14,009,382	116,795	75,015	3,496	66,184	14,550	462,666	43,084	160,248	969,076

<sup>1</sup> Children's clinics only.

<sup>2</sup> Includes central city.

<sup>3</sup> Includes one or more cities of at least 50,000 persons (1940) other than central city.

<sup>4</sup> Not reported.

<sup>5</sup> Allocation of service between city and balance of county not reported.

<sup>6</sup> Included in New York county.

# School Lunches from a Health Standpoint

By ROY E. BUTLER, M. D.\*

This presentation deals with certain aspects of the school lunch study conducted in a community near Washington by the United States Department of Agriculture and a Public Health Service nutrition field unit assigned to the Maryland Department of Health. In this cooperative project, the nutrition field unit was assigned to make the clinical nutritional appraisals, to take the one-day dietary histories, and to perform some of the laboratory work. The unit consisted of a physician, a nutritionist, a biochemist, a nurse, and clerical help. Field units of the Nutrition Branch of the Public Health Service are set up to demonstrate to State and local health departments methods of assessing nutritional status. They apply various known techniques and investigate new ones for local health department use.

The unit attempted to determine whether there is any correlation between an individual's food intake and his laboratory and physical findings. For the experiment, a school serving lunches and a control school were selected. About 340 children between the ages of 6 and 12 were observed in each school for 6 weeks in 1947 and in 1948.

Dietary histories of the children were taken. Whereas the nutritionist of the unit obtained from each child information concerning the food he had eaten during the previous 24 hours, the Bureau of Human Nutrition and Home Economics, Department of Agriculture, recorded the food consumed by the family for one week.<sup>1</sup> The latter placed special emphasis on the foods eaten by the child as reported by the mother. These histories gave some indication of the community dietary patterns when the group results were determined. The results of the analyses of the one-day dietary records will be reported at a later date.

The doctor's rating of the children as to physical appearance did not vary substantially between schools or from one year to the next. Around two-thirds of the youngsters were considered to be in good health, about a third in fair health, and a small percent or practically none in poor health.

\*Senior Surgeon from the Division of Chronic Disease, Public Health Service. Presented before the Food and Nutrition Section and the American School Health Association, Oct. 27, 1949.

<sup>1</sup> The dietary aspects and certain of the laboratory findings are discussed in an article by Dr. Millicent Hathaway submitted for future publication in the American Journal of Public Health. This paper also outlines the characteristics of the schools, the reasons for their selection, and the general procedures followed in an attempt to determine the benefit to the child of a school lunch.

The physical examinations were first made in the control school and then about a month later in the lunch school. All physical examinations in 1947 were made by one clinician. Another clinician who had observed his methods at that time made the examinations in 1948.

The physical examination for the nutritional appraisal was directed toward the skin, mouth, and eyes, the first areas to show signs of malnutrition. Thirty-nine localized regions were examined and graded for a complete description of these organs. The changes in the various aspects of these organs and tissues were graded from zero, showing the absence of abnormality, through three, which indicated a severe disturbance. Anthropometric measurements were restricted to the determination of height and weight.

The biochemist made examinations of the blood which included determinations for hemoglobin, carotene, and vitamin A. Ascorbic acid determinations were made by the Department of Agriculture.

## Results

### *Physical Examinations*

Comparisons of height-weight relationships between the lunch group and the no lunch group failed to reveal any significant difference between the two groups of children.

Thirty of the 39 signs of nutritional deficiency required no further analysis because so few of the children showed evidence of them and then only to a minimal degree. They proved insignificant as a means of evaluating the school lunch program. For this reason the analysis was limited to the following signs and symptoms.

1. General appearance—a subjective impression of the child's outward appearance without reference to grooming or personal hygiene.

2. Eyes.

- a. Thickening of the conjunctiva covering the sclera.

- b. Folliculosis—follicular hypertrophy of the palpebral conjunctiva.

- c. Blepharitis—an inflammation of the eyelids extending along the line of the hair follicles; usually no discharge but some scaliness and slight loss of hair. This condition is occasionally associated with a nutritional deficiency but other conditions, such as bacterial infection or visual defects, may also be the cause of the condition.

- d. Outer canthi lesions—redness and scaliness extending from the outer corners of the eyes.

3. Mouth.

- a. Gingivitis—inflammation with various degrees of swelling of the gums along the margins of, and especially between the teeth. Sensitivity to pressure with subsequent bleeding varies with extent of involvement.

b. Tongue fissuring—"cracks" on surface of tongue appearing when extended and gently pushed down with a tongue depressor.

c. Other tongue signs—swelling of the tongue or abnormal appearance of the papillae.

#### 4. Skin.

a. Xerosis and folliculosis—these conditions were recorded separately but were combined for statistical analysis. Xerosis is a dryness of the skin combined with various degrees of roughness. Folliculosis is a "goose-flesh" condition looked for in this examination only on the outer surface of the arms.

The analyses of the nine signs revealed inconsistent differences between the two schools, and from year to year, which indicates that factors more important than the school lunch were affecting the results. In all cases the signs seen were minimal in degree. At the time of the examination the examiners were unaware of the degree of participation of the children in the school lunch program. The comparison of the physical signs obtained in 1947 with those in 1948 is complicated because the examinations were conducted by two different physicians. Studies have shown that even if the same physician examines the same individuals at different periods, considerable variations in the findings may be expected. Also, when examiners of similar training and knowledge of the subject examine the same individuals, a considerable variation in their findings may be expected.

#### *Laboratory*

It has been reported that the hemoglobin determinations revealed no evidence of advantage for the children receiving the school meal.<sup>2</sup> It was shown that the blood ascorbic acid values improved in 1948 over 1947 in both schools regardless of participation in the school lunch but improved more markedly for the children who participated both years in the school lunch. This may reflect the use of citrus concentrates which were added to the school lunches in March 1947.

The blood carotene values for any one year were distributed in a manner that indicated that the school lunch group had more individuals in the good group and fewer in the poor group than the no school lunch group. However, in the lunch school in 1948, the children with and without a school lunch showed little difference in carotene values. The blood vitamin A determinations showed little difference between the school lunch and the no school lunch groups.

#### **Discussion**

The school health examination did not reveal any significant amount of malnutrition for reasons which will be advanced later. It should be

<sup>2</sup> See footnote 1.

noted that the nutrition appraisal as carried out in this study may fail to uncover defects which affect the physical and emotional health of the individual. There are defects of vision, hearing, diseased tonsils, hernias, and some other conditions which may be present and yet not disturb the nutritional status to an appreciable extent.

The traditional health examination carried out in schools should be broadened to include not only nutritional disturbances but as many factors as possible which influence the complete health of the individual. The examination should attempt to determine the child's freedom from physical, nutritional, mental, and emotional defects. It is obvious that under the present circumstances we cannot expect specialists in each of these fields to examine each child in the school. Each specialty should attempt to provide the school physician with simple screening techniques which permit him to pick out the children requiring further examinations and additional study.

The first reason for the failure to detect any significant amount of malnutrition may be explained by the variability of findings by different observers or even the same observer at different times. It is well to recognize that the evaluation of the physical signs depends largely upon subjective impressions for which we have no adequate comparative standards. In this study the signs were so minimal in degree that the indication of the presence or absence of one might be readily overlooked.

Second, many of the signs which have been described as evidence of the deficiency of specific nutrients are now thought to be less diagnostic than formerly. The tendency grows to consider these signs as evidence of a defect which may or may not be due to malnutrition but, if so, a manifestation resulting from multiple deficiencies. It is to be remembered that clinical nutrition is a young science and suffers from the same growing pains experienced by some of the older sciences. However, careful observance and recording of the defects may be interpreted at a later date with clarity.

The nutritional status of an individual is usually the result of his adherence to some dietary pattern for quite a long period of time. In this study observance of the children for a 6-week period in 2 successive years may not be too indicative of their food practices for the remainder of the time. Also to be taken into consideration are factors such as energy expenditures, emotional disturbances, and community life.

The study of the family dietary pattern revealed it to be fairly good with some exceptions which are common to our population. It might be suggested that the children who went home for lunch or who carried it with them might have had as good a lunch as that provided by the school.

Under such circumstances, the child would very likely bring one

or more sandwiches made of enriched bread, butter and cheese, meat or eggs with some lettuce. The lunch box would also contain a fruit and milk. Is it likely that our presently served school lunches are much better than this from a nutritional standpoint?

The school lunch and the no school lunch groups may not be as sharply demarcated as it would first appear. Included in the school lunch group were those who had four or more lunches a week but the no school lunch group included some who had not more than one school lunch a week. This would indicate that the difference between the two groups might not be more than three school lunches a week. Such a small difference would be hard to evaluate especially when it must be considered that the no school lunch children probably had a lunch of some sort.

Third, complete participation in the school lunch program for the entire school year would provide only about 17 percent of the meals for the year. If the no school lunch group were deprived of their lunch entirely it would probably take a considerable period of time before the two groups could be differentiated on a physical basis.

Fourth, the children were in quite good nutritional status in both groups from the beginning of the study. This factor may be one of the most important in the similarity of the two groups and the failure to note an advantage from the school lunch. The extent of the response of an individual to added increments of food is dependent largely upon the severity of the deficiency at the beginning of the supplementation. Severely depleted individuals respond to small supplements of food to a much greater degree than do the well nourished. In this study the amount of the supplement could not be considered as great and the nutritional status was fairly good.

Under certain circumstances the school health examination would be able to differentiate between those who receive a school lunch and those who do not. In attempting to assess the value of the school lunch to health, more dramatic results could be obtained if studies were conducted in a critical area. A base-line study before and follow-ups after the introduction of a school lunch might be expected to show its value to health. Even better would be the selection of two comparable schools in such an area—one with a school lunch and the other without. Under such conditions improvements in the lunch group should be expected, provided the nutritional status of the children was poor at the beginning of the study and a sufficiently long period of evaluation was allowed.

The really important fact to be considered from the standpoint of the health evaluation deals with the total dietary intake over a period of time. Within the family there should be the awareness of the need for a good diet for the greater period of time that the child is not in school and not be lulled into a sense of security because the child is

getting a school lunch. It is obvious that in a critical area where the individual dietary intake is low the provision of a good school lunch would be very valuable.

The value of the school lunch as an educational device has not been touched upon, but it would appear to be most important. Certainly the improvement of the dietary pattern should be reflected in improved health. Education in nutrition and health must be a continuing process. It differs very little from learning in other fields.

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<sup>1</sup> No

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July

# Incidence of Disease

No health department, State or local, can effectively prevent or control disease without knowledge of when, where, and under what conditions cases are occurring

## UNITED STATES

### Reports From States for Week Ended July 1, 1950

New cases of acute poliomyelitis reported in the United States for the week ending July 1 numbered 391, a moderate increase over the 336 cases reported for the preceding week. However, the number is lower than the 481 cases reported for the corresponding week last year. Also, the cumulative total of 2,053 cases for the current "disease" year is below the corresponding total for last year (2,271), although well above the median of 1,385 for the same period during the last 5 years. The "disease" year for poliomyelitis begins with the twelfth week of the calendar year.

Moderate increases over the preceding week were reported for the Middle Atlantic, East North Central, South Atlantic, East South Central, and West South Central States. Little change was indi-

#### Comparative Data for Cases of Specified Reportable Diseases: United States

[Numbers after diseases are International List numbers, 1948 revision]

Disease	Total for week ended		5-year median 1945-49	Seasonal low week	Cumulative total since seasonal low week		5-year median 1944-45 through 1948-49	Cumulative total for calendar year		5-year median 1945-49
	July 1, 1950	July 2, 1949			1949-50	1948-49		1950	1949	
Anthrax (062)	4	2	(1)	(1)	(1)	(1)	(1)	24	33	(1)
Diphtheria (055)	58	72	149	27th	7,338	8,802	13,731	3,067	3,688	6,165
Acute infectious encephalitis (082)	22	12	10	(1)	(1)	(1)	(1)	366	269	231
Influenza (480-483)	643	511	511	30th	274,641	110,455	179,841	244,111	74,185	136,283
Measles (085)	7,940	8,006	8,006	35th	284,538	621,264	552,242	265,408	568,871	517,296
Meningococcal meningitis (057.0)	72	48	50	37th	2,102	2,836	3,080	2,279	1,992	2,108
Pneumonia (490-493)	1,102	933	-----	(1)	(1)	(1)	(1)	55,309	50,103	-----
Acute poliomyelitis (080)	391	481	273	11th	2,053	2,271	1,385	3,187	3,186	1,852
Rocky Mountain spotted fever (104)	22	32	26	(1)	(1)	(1)	(1)	160	238	175
Scarlet fever (050)	487	456	937	32d	54,756	78,604	85,644	38,317	56,060	58,958
Smallpox (084)	-----	-----	1	35th	43	50	191	23	40	140
Tularemia (059)	15	28	27	(1)	(1)	(1)	(1)	511	640	514
Typhoid and paratyphoid fever * (040, 041)	94	80	108	11th	912	863	997	1,422	1,351	1,470
Whooping cough (056)	2,289	1,241	2,152	39th	90,721	37,505	81,382	60,185	27,471	50,116

<sup>1</sup> Not computed. <sup>2</sup> Deduction: Arkansas week ended Mar. 4, 1 case. <sup>3</sup> Deduction: Arizona week ended June 17, 1 case. <sup>4</sup> Including cases reported as salmonellosis.

July 21, 1950

925

cated for the New England and West North Central States, while the Mountain and Pacific States reported decreases. States reporting 15 or more cases are as follows: Texas 124, New York 27, Oklahoma 25, California 22, South Carolina 17, and Louisiana 15.

Reported cases of meningococcal meningitis for the week numbered 72 compared with 73 for the preceding week, 48 for the corresponding week last year, and a 5-year median of 50. The cumulative total for the current calendar year is 2,279 compared with the 5-year median of 2,108 cases.

The number of cases of acute infectious encephalitis reported for the week was 22, compared with 27 cases for the preceding week, and the 5-year median, 10, for the corresponding week. The cumulative total of reported cases during the present calendar year is 366, which may be compared with the corresponding figure of 269 for 1949 and 231 for the 5-year median for the same period.

The total number of reported cases of influenza for the week was 643 as compared with 619 last week and 511 for the corresponding week last year. The 5-year (1945-49) median is 511. The cumulative figure for the first 26 weeks of the year is 244,111, compared with 74,185 for the corresponding period last year. The 5-year median is 136,283.

Reported cases of Rocky Mountain spotted fever numbered 22 for the week, 13 of which were in the South Atlantic States. For the corresponding week last year, 32 cases were reported.

Four cases of anthrax were reported, three of which occurred in Pennsylvania. No cases of smallpox were reported for the current week.

### Deaths During Week Ended July 1, 1950

	Week ended July 1, 1950	Correspond- ing week, 1949
Data for 94 large cities of the United States:		
Total deaths.....	8,932	8,978
Median for 3 prior years.....	8,963	-----
Total deaths, first 26 weeks of year.....	248,963	246,775
Deaths under 1 year of age.....	658	686
Median for 3 prior years.....	646	-----
Deaths under 1 year of age, first 26 weeks of year.....	16,175	16,853
Data from industrial insurance companies:		
Policies in force.....	69,739,298	70,356,854
Number of death claims.....	11,795	12,139
Death claims per 1,000 policies in force, annual rate.....	8.8	9.0
Death claims per 1,000 policies, first 26 weeks of year, annual rate.....	9.8	9.5

# Reported Cases of Selected Communicable Diseases: United States, Week ended July 1, 1950

[Numbers under diseases are International List numbers, 1948 revision]

Area	Diph- theria (055)	Enceph- alitis, infectious (082)	Influ- enza (480-483)	Measles (085)	Menin- gitis, menin- gococcal (057.0)	Pneu- monia (490-493)	Polio- myelitis (080)
<b>United States.....</b>	<b>58</b>	<b>22</b>	<b>643</b>	<b>7,940</b>	<b>72</b>	<b>1,102</b>	<b>391</b>
<b>New England.....</b>	<b>5</b>	<b>4</b>		<b>960</b>	<b>3</b>	<b>21</b>	<b>7</b>
Maine.....	3			7		2	1
New Hampshire.....				8			
Vermont.....				6			
Massachusetts.....	2	4		754	1		3
Rhode Island.....				1	1	4	
Connecticut.....				184	1	15	3
<b>Middle Atlantic.....</b>	<b>3</b>	<b>6</b>		<b>2,472</b>	<b>17</b>	<b>178</b>	<b>45</b>
New York.....		3	(1)	1,080	9	126	27
New Jersey.....		3		697	2	23	7
Pennsylvania.....	3			695	6	29	11
<b>East North Central.....</b>	<b>3</b>	<b>2</b>	<b>8</b>	<b>2,433</b>	<b>9</b>	<b>130</b>	<b>31</b>
Ohio.....				668	3	21	4
Indiana.....				87		2	3
Illinois.....		1		602	4	56	9
Michigan.....	3	1		308	1	48	10
Wisconsin.....			8	768	1	3	5
<b>West North Central.....</b>	<b>2</b>	<b>2</b>	<b>3</b>	<b>210</b>	<b>4</b>	<b>92</b>	<b>19</b>
Minnesota.....	1	1	2	44	1	18	2
Iowa.....				37	1		3
Missouri.....			1	50	1	20	2
North Dakota.....				2		46	
South Dakota.....		1		9	1		
Nebraska.....				42			4
Kansas.....	1			26		8	8
<b>South Atlantic.....</b>	<b>10</b>	<b>1</b>	<b>155</b>	<b>260</b>	<b>11</b>	<b>338</b>	<b>48</b>
Delaware.....				18			1
Maryland.....			6	42	2	38	1
District of Columbia.....				35		13	3
Virginia.....	3		62	66	1	22	8
West Virginia.....			9	10		7	4
North Carolina.....	1			37	4		4
South Carolina.....	3		18	11		5	17
Georgia.....	2	1	60	7	4	247	4
Florida.....	1			34		6	6
<b>East South Central.....</b>	<b>5</b>	<b>1</b>	<b>14</b>	<b>144</b>	<b>6</b>	<b>26</b>	<b>42</b>
Kentucky.....	1			57	2	7	14
Tennessee.....	2	1	9	57	4		11
Alabama.....	1		1	11		14	6
Mississippi.....	1		4	19		5	11
<b>West South Central.....</b>	<b>23</b>	<b>5</b>	<b>383</b>	<b>326</b>	<b>12</b>	<b>249</b>	<b>168</b>
Arkansas.....	2		26	37	2	2	4
Louisiana.....	2		2	16	1	39	15
Oklahoma.....	2		11	8	1	23	25
Texas.....	17	5	344	265	8	185	124
<b>Mountain.....</b>	<b>1</b>		<b>75</b>	<b>610</b>	<b>2</b>	<b>30</b>	<b>8</b>
Montana.....			13	14			
Idaho.....				62			3
Wyoming.....				2		1	
Colorado.....	1		4	284	1	6	2
New Mexico.....				7		1	1
Arizona.....			55	26	1	10	1
Utah.....			3	214		1	1
Nevada.....				1		1	
<b>Pacific.....</b>	<b>6</b>	<b>1</b>	<b>5</b>	<b>525</b>	<b>8</b>	<b>48</b>	<b>23</b>
Washington.....	1			92	1		1
Oregon.....			4	6	1	15	
California.....	5	1	1	427	6	33	22
Alaska <sup>2</sup> .....							
Hawaii.....	1			1	1		1

<sup>1</sup> New York City only.

<sup>2</sup> Report not received.

Anthrax: Pennsylvania 3, Colorado 1.

# Reported Cases of Selected Communicable Disease: United States, Week ended July 1, 1950—Continued

[Numbers under diseases are International List numbers, 1948 revision]

Area	Rocky Mountain spotted fever (104)	Scarlet fever (050)	Smallpox (084)	Tularemia (059)	Typhoid and paratyphoid fever (040, 041) <sup>1</sup>	Whooping cough (056)	Rabies in animals
<b>United States</b>	<b>22</b>	<b>487</b>		<b>15</b>	<b>94</b>	<b>2,289</b>	<b>137</b>
<b>New England</b>		<b>76</b>			<b>1</b>	<b>261</b>	
Maine		4				47	
New Hampshire							
Vermont		2				20	
Massachusetts		60			1	81	
Rhode Island		2				44	
Connecticut		8				69	
<b>Middle Atlantic</b>		<b>131</b>			<b>6</b>	<b>238</b>	<b>30</b>
New York		93			5	101	27
New Jersey		11			1	50	
Pennsylvania	1	27				87	3
<b>East North Central</b>		<b>129</b>		<b>2</b>	<b>2</b>	<b>438</b>	<b>32</b>
Ohio		67			1	172	2
Indiana		1				8	18
Illinois		16		2		48	3
Michigan		28			1	150	8
Wisconsin		17				60	1
<b>West North Central</b>		<b>10</b>			<b>6</b>	<b>153</b>	<b>18</b>
Minnesota					2	14	
Iowa		2				30	8
Missouri		5			1	49	
North Dakota						15	
South Dakota						6	
Nebraska						12	
Kansas		3			3	27	10
<b>South Atlantic</b>	<b>13</b>	<b>25</b>		<b>2</b>	<b>36</b>	<b>309</b>	<b>15</b>
Delaware		2			1	5	
Maryland	4	8			2	34	
District of Columbia		1				4	
Virginia	2	5			2	75	2
West Virginia	1	2				45	2
North Carolina	5	5		1	8	115	
South Carolina	1	1			20	14	
Georgia		1		1	3	14	11
Florida						3	
<b>East South Central</b>	<b>2</b>	<b>16</b>		<b>1</b>	<b>8</b>	<b>107</b>	<b>18</b>
Kentucky	1	2			3	23	10
Tennessee	1	9		1		64	1
Alabama		1			3	12	5
Mississippi		4			2	8	2
<b>West South Central</b>		<b>20</b>		<b>8</b>	<b>28</b>	<b>461</b>	<b>17</b>
Arkansas		2		4	4	77	
Louisiana		2		1	6	3	
Oklahoma		3		2	3	51	1
Texas		13		1	15	330	16
<b>Mountain</b>	<b>6</b>	<b>16</b>		<b>2</b>		<b>120</b>	<b>6</b>
Montana	1	2		2		5	
Idaho		2				17	
Wyoming	1						
Colorado	2	3				19	6
New Mexico	1	1				20	
Arizona		3				36	
Utah	1	2				21	
Nevada		3				2	
<b>Pacific</b>		<b>64</b>			<b>7</b>	<b>202</b>	<b>1</b>
Washington		6				38	
Oregon		7				77	
California		51			7	87	1
Alaska <sup>2</sup>							
Hawaii						1	

<sup>1</sup> Including cases reported as salmonellosis.

<sup>2</sup> Including cases reported as streptococcal sore throat.

<sup>3</sup> Report not received.

## FOREIGN REPORTS

### CANADA

#### Reported Cases of Certain Diseases—Week Ended June 17, 1950

Disease	New-found-land	Prince Edward Island	Nova Scotia	New Brunswick	Quebec	Ontario	Manitoba	Saskatchewan	Alberta	British Columbia	Total
Brucellosis					7	2			1		10
Chickenpox			12	2	140	310	18	20	59	99	660
Diphtheria						1					1
Dysentery, bacillary					4	1	1			2	8
Encephalitis, infectious								1			1
German measles			23		8	1,086	2	85	107	248	1,559
Influenza			15			10	11				36
Measles			2		365	595	26	21	32	157	1,198
Meningitis, meningococcal					1	3				1	5
Mumps			17		129	340	6	51	134	96	773
Poliomyelitis						1				2	3
Scarlet fever	13		3	1	53	23		5	32	13	143
Tuberculosis (all forms)	22		9	35	100	23	13	11	3	49	265
Typhoid and paratyphoid fever	2			2	6	2				6	18
Venereal diseases:											
Gonorrhea	6		5	3	71	30		15	40	(1)	170
Syphilis	5		7	4	48	13		4	3	(1)	84
Whooping cough	2		20	1	105	37	3	10	2	60	240

<sup>1</sup> Report for the period not received.

### REPORTS OF CHOLERA, PLAGUE, SMALLPOX, TYPHUS FEVER, AND YELLOW FEVER RECEIVED DURING THE CURRENT WEEK

The following reports include only items of unusual incidence or of special interest and the occurrence of these diseases, except yellow fever, in localities which had not recently reported cases. All reports of yellow fever are published currently. A table showing the accumulated figures for these diseases for the year to date is published in the PUBLIC HEALTH REPORTS for the last Friday in each month.

#### Cholera

*India.* During the week ended June 24, 1950, 260 cases of cholera were reported in Calcutta, and 12 cases in the airport of Delhi.

*Indochina (French).* One fatal case of cholera was reported in the rural area of Soctrang, Viet Nam, during the week ended June 17, 1950.

*Pakistan.* During the week ended June 27, 1950, 9 cases of cholera, with 4 deaths, were reported in Chittagong.

#### Plague

*Ecuador.* During the period May 1-15, 1950, two cases of plague with one death were reported at Malobog, Riobamba County, Chimborazo Province.

## Smallpox

*Argentina.* During the month of April 1950, 158 cases of smallpox were reported in Argentina. The highest incidence was reported in San Juan Province (58 cases) and Rio Negro Territory (28 cases).

*Belgian Congo.* Eighty-seven cases of smallpox were reported in Belgian Congo during the week ended June 3, 1950.

*French West Africa.* For the period May 21-31, 1950, 112 cases of smallpox were reported in Niger Territory.

*Greece.* During the period May 17-23, 1950, 11 cases of smallpox (including 6 suspected cases), with 2 deaths, were reported in Attica Department.

*Indonesia.* During the week ended June 17, 1950, 185 cases of smallpox were reported in Surabaya, Java, and 51 cases in Pontianak, Borneo.

*Mexico.* For the week ended June 17, 1950, eight cases of smallpox were reported in Mexico City, and five in Guadalajara.

*Nigeria.* During the week ended May 20, 1950, 349 cases (47 deaths) of smallpox were reported in Nigeria. For the weeks ended May 6 and May 13, 489 and 442 cases were reported, respectively. In the port of Lagos 8 cases (3 deaths) were reported for the week ended May 20. For the two previous weeks, 14 and 8 cases were reported.

## Typhus Fever

*Japan.* Cases of typhus fever have been reported in ports in Japan as follows: Weeks ended May 6, 1950, Tokyo 2, Hyogo 8; May 13, Osaka 2; June 10, Nagasaki, 1; June 17, Otaru 2; June 24, Nagasaki 1, and Tokyo 1.

*Turkey.* Thirteen cases of typhus fever were reported in Turkey during the month of April 1950, and 21 cases during the month of May.

## Yellow Fever

*Sierra Leone.* On June 9, 1950, one suspected case of yellow fever was reported in Koinadugu District.

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The printing of this publication has been approved by the Director of the Bureau of the Budget (August 10, 1949).

The PUBLIC HEALTH REPORTS, first published in 1878 under authority of an act of Congress of April 29 of that year, is issued weekly by the Public Health Service through the Division of Public Health Methods, pursuant to the following authority of law: United States Code, title 42, sections 241, 245, 247; title 44, section 220.

It contains (1) current information regarding the incidence and geographic distribution of communicable diseases in the United States, insofar as data are obtainable, and of cholera, plague, smallpox, typhus fever, yellow fever, and other important communicable diseases throughout the world; (2) articles relating to the cause, prevention, and control of disease; (3) other pertinent information regarding sanitation and the conservation of the public health.

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